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DE ANIMA: PSYCHOLOGY AND SCIENCE

I

SINCE the seventeenth century, when the notion became common that progress was possible in philosophy and science only by breaking with the scholastic past, it has been customary to underline the novelty of the new philosophy and the new sciences by repudiating the occult qualities, the substantial forms, and the substances of preceding systems. The revolution in psychology and in the theory of knowledge follows in that scheme of progress. The device is, to be sure, older than the seventeenth century: Aristotle disposed of entities which had been esteemed necessary to philosophy—platonic ideas, pythagorean numbers, democritean atoms being among the concepts rendered fruitless by the aristotelian soul; Thomas Aquinas disposed of the plurality of substantial forms and of seminal reasons in explanation of the activities of the aristotelian soul; William of Ockham was so proficient in the use of his razor that that aspect of his philosophic activity alone seems to have escaped oblivion, but in particular he could explain the activities of the soul without the soul itself or the faculties of the soul. Most of the negations of the seventeenth century have had precedents in the history of thought, save possibly in some instances where, in access of dialectical ardor, positions were refuted that had never been held. The philosophical difficulties, however, in which the new sciences found themselves, and the new problems they discussed, did not arise from the entities they denied, but from the systems of explanation which they adopted. There should consequently have been no reason for inquietude in the decision to which psychologists of the last century, following in the line of the development of the sciences, saw themselves forced (psychologies as divergent as those of Wundt and Brentano could be in agreement on this point), sometimes in emulation of the methods of the physical sciences, sometimes compelled by the exigencies only of rational analysis, that psychologists should be content with an account of phenomena and should dispense entirely with substance. The soul and the mind were disposed of; in some systems consciousness, in others unconsciousness, was unnecessary to the explanation of psychological phenomena; instincts were sometimes abandoned, sometimes reduced down and analyzed; ideas suffered various substitu-

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tions and analogies. Yet so slight is the apparent threat of these annihilations that precedent, unfortunately forgotten, could be found for most of them in the labors of the invincible Ockham and his followers.

It is impossible to encompass in any single description the progress of psychology without a soul. There has been such a multiplication of systems, of techniques of analysis, such alterations in the divisions of subject-matter and in the statement of properties and functions to be explained, that one is at loss to enumerate the new truths and methods. The internecine warfare between systems, moreover, makes the task of estimation more difficult than had been the refutation of the unified ancient error. In the large, it is true that the doctrines and techniques of the ancient science have been abandoned, and they have come, in the measure in which they have been forgotten, to be little esteemed. So definitely, indeed, has the historical dogma been set, which tells of the formation of the sciences out of scholasticism, of the separation first of physics from philosophy which had ceased from omniscience, then of chemistry, finally of biology, psychology, and the social sciences, that the suggestion that wisdom may be learned by a backward glance will face the resistance of an *a priori* improbability. The dogma is that states and histories of states can be examined in whatever detail is made possible by any of the variety of techniques, but if the inquiry concerning a state threatens to run into the inquiry concerning that of which it is a state, or if the state is in danger itself of being entitized, the inquiry ceases at that point to be scientific.

None the less, notwithstanding that the contention of the modern psychologist, maintaining the soul can not be the object of a science, may be fundamentally sound, and notwithstanding that the notion of the soul had been so freighted with confusing connotations that to ignore it, even for less sound reasons, would have been helpful to psychology, it is not impossible that the predicament of psychologies to-day has been the consequence of the happy exclusion of the soul from psychology. The solution of the predicament, however, may require not so much the reintroduction of the soul to be the object of a science, as the examination of the reasons why a science of the soul is impossible. For to affirm that there is or that there is not a soul is less important than the consequences of such affirmation or denial, and modern psychology has been concerned too long with the reality and integrity of the entities it examined without concern with the consequences of the examination, whatever the reality of the entities. In respect of the philosophical consequences to which they were intended, Ockham's repudiation

of the doctrine of the soul as held by his predecessors is identical with the affirmation of the soul by Aristotle: for Ockham meant to emphasize that the soul is nothing over and above the activities of knowing and moving that are attributed to it, and Aristotle wished to emphasize that no entity, harmony, number, or principle is necessary other than the principle of such actions and movements as an organic body can encompass.

The soul as substance, therefore, in the aristotelian sense of the actuality of the organic body, need not have interfered with the concern of psychologists exclusively with phenomena; it would on the other hand have permitted a transition into a group of problems which are difficult to state in terms of phenomena only. The soul, as Aristotle affirmed it, is to the body as axeness is to the axe or as vision is to the eye. There is no difficulty in understanding that even the fullest examination of the physiological and physical constitution of the eye will not explain seeing, that the examination of the material or even the figure of the axe will not explain cutting: in either case such examination will disclose at most the possibility of such acts. But to explain an act in any scientific sense it is not sufficient that the potentiality be known—or even the efficient cause that may set the potentiality on the way to realization—science is achieved only when the end realized, the act itself, is known. Science is properly not of matter or of efficient cause, but of form or end. The act is possible through the organ, but function and organ are explicable and intelligible only through the realized act, the end of the function. In most experimental physical sciences the formal element, the principles of the process in question, can be introduced without remarking that one has proceeded beyond the matter which the experiment examined, for every actuality is a realized potentiality; and every stage of experience, potential to some further stage, is the actuality of some previous stage. Only in the soul does the process come to an end, since the soul is the final actuality of the organic body, and there is nothing beyond the soul, save itself, to which it can be considered potential. It is, therefore, never the matter of examination, and it can easily be ignored in an experimental approach, since it furnishes only a principle of order for sciences, not the basis for a new science, and in modern theories of science order is less esteemed than new data.

As axeness, then, is the actuality of the axe, vision the actuality of the eye, so the actuality of the human body is the form of its activity or the principle of its action. The form of activity which is possible to the organic human body is not entitized by being recognized and having a name imposed on it. On the contrary, science of processes is impossible, if it is not recognized that activities have

principles as well as materials. But the new science, having in its infancy entitized all principles, developed a new caution with respect to them: on the plea of following nature closely and grounding itself in experience, it introduced new principles (or even old principles in the guise of new) profligately, seeing in them only legitimate observations, since they were always matter for the explanation of activities, denying them only when they became ultimate and matter for nothing further, that is, first principles. Since the time when Locke carried that method into general philosophic practise, psychology has pursued with fine faithfulness the method of analyzing sensations to understand memory, instincts, habits, complexes, reflexes, and then analyzing them in turn to understand reason. The relation of body to mind became first a problem, and then insoluble, since the examination of the activities of the body, of course, disclosed nothing save bodily activities, and the search for the soul had developed into a search for incorporeal activities, not for the principle (as principle, incorporeal) of the activities of the body. The problem of the relation of body and soul should be no more difficult than the problem of the relation of axe and cutting. If psychologists can consider the relation of glands to emotional and intellectual functions, there should be no difficulty in the relation of body and soul: that difficulties have been encountered is the result of the attitude according to which it can be recognized that glands may influence intelligence, while no significance can be attached to the possibility that intelligence may be the principle or actuality of glandular secretions. None the less the history of the sciences suggests that when principles can be discovered, it is wise to abandon the integrity of one's subjugation to experience, to the extent at least of ordering experience according to principles. The dilemma of experimental psychology suggests, as reinforcement of its inquiry into origins, the aristotelian truth that the principle of sensation is reason, and the principle of reason the soul.

Whereas the sum of ancient and medieval psychology, for that aristotelian reason, is to be found in treatises entitled *de Anima*, modern psychologies study the career of sensations as they become ideas, or conditioned reflexes as they are grafted on unconditioned reflexes and undergo their proper processes of multiplication and coördination, or conative impulses as they oppose or reinforce each other or become submerged. Whatever the manner or line of genesis, by the modern method, the later and more elaborate stages are to be explained by simpler and earlier stages with which they can be shown by analysis to be connected; or from which they can even be supposed to have originated. It makes little difference whether psychoanalysis, behaviorism, introspective psychology, or gestalt psy-

chology study the organism or the degree and kind of integration which a chosen variety of experience can achieve, the study is of the phenomena of a process whose end would be the actuality of the organic body; that actuality ancient psychologists called the soul.

Stated conversely, the observed phenomena which psychology has been concerned to explain can all be found labeled, with no violence to them, among the functions of the soul. Aristotle, indeed, suggested that the power of a thing be learned from the study of its functions, and from its powers, its essence. The importance of a backward glance at the doctrine of the soul does not consist in that many of the functions of the soul are still studied in the science of psychology, but rather in that some of its functions are no better known for all the revolution and liberation of science. If these functions are rendered clearer, in that process of clarification the nature of the science which had failed in its attempt at explanation may suffer a like illumination, for science has the peculiar position in this science of psychology, that it is the product of that function of the soul which has been least amenable to scientific investigation.

In the rational soul Aristotle found full exemplification of the ordering of faculties to a principle, for which the doctrine of the soul seeks to account. To have a rational soul is to be possessed not only of all the functions that might strictly be called rational, but also of all the functions that are presupposed to rationality. It is to have a vegetative soul, whose functions are growth, nourishment, and reproduction, a sensitive soul, whose functions involve the operations of the five senses, the manipulation of the data common to the particular senses (in the formation of such concepts as magnitude, motion, shape, and others), memory, imagination, and finally the functions proper to rational thought. Such faculties are not diverse entities, but the diverse activities of the organic body operating to appropriate ends. The problems with which psychology has been concerned have shifted during its history with the shifts of psychological techniques: progress in some types of analysis is possible without consideration of the principles involved, for some of the activities of the soul can be treated adequately by an examination of the bodily organs by which they are possible; but the predicament of psychology is that others are intelligible only in terms of the actuality to which they are directed. If psychology is considered as the science of the soul, the object studied by psychology is the actuality of which the body is potentiality, and three types of problems may be distinguished. One portion of psychology must be devoted to the study of the organs on which the activities depend as on their matter; properly,

the study of organic and muscular behavior and neural organization, which are the bases for habitual and sensitive and even rational activity, is a derivation from physics or physiology. A second portion must be concerned with the relation of body to soul in the one sense in which that problem arises in these terms, that is, the relation of that which is potentially to the actuality which it may realize. Aristotle has left an instructive series of works, the *Parva Naturalia,* on the problems proper to this portion of psychology: the problems of sense and the sensible, of sleep and waking, of dreams, of the principle of movement in animals, of youth and old age, of longevity and brevity of life, of life and death, and of respiration. A third portion of psychology must be devoted to the problems of the rational soul itself—the formation of concepts and judgments (or the composition of propositions from terms), their relation to each other in inference, their application to subject things in induction. In this division, the subject-matter of modern psychology is derived almost exclusively from the first portion; the second portion is dealt with occasionally, though less frequently, for its subject-matter is not wholly respectable among scientific inquiries, and its problems therefore, posed in the abstract, have found little in the new data of science to improve on the statement Aristotle made of them; modern literature on the third portion is very unimpressive when it is compared with the literature of antiquity and the middle ages.

Psychologists, none the less, from Democritus and Lucretius, through Telesio and Hobbes to Watson, have sometimes thought it the way of wisdom to reduce psychology to physics or physiology. Such a reduction avoids the difficulty that is indicated in the statement that there can be no science of the soul, and by it psychology is made a science with a defined subject-matter and therefore respectable. There are impressive instruments, and there are fruitful analogies between the sciences by which to prepare the formulation and resolution of many problems. Moreover, much that has been done in this tradition is in investigation of genuine and ancient problems of the soul's activity, since it is concerned with the first portion of the subject-matter of psychology. Yet the sum of that investigation leaves untouched an important aspect of psychical phenomena, and the suspicion is suggested by the problems that remain that sometimes more may be known by an examination of the causes of such ignorance than by a competent investigation that ignores, without further word, what can not be known; possibly the hint of the nature of knowledge may be found at the bounds of knowledge.

The sources of the difficulty of a psychology of the rational

processes is in the precise determination of its subject-matter. When the object of science is sensation, the psychologists of differing schools have no difficulty stating the subject-matter of their science: some have for data only the perceptions of sense, some have organic changes to investigate, some are able to state the relation of object, medium, and percipient. For all the differences of analysis, however, the work done can be reduced in the various systems to equivalent statements, and the differences consist not so much in a difference in that examined as in a different degree of confidence, displayed in the terms of the analysis, in the reality of something extramental, or in the actuality of the content of the mind. Sensation, however, is not itself perceived by sensation, but by a rational process, and it is therefore of a different order of investigation to ask what the mind knows when it knows itself instead of something other than itself. Actual knowledge is identical with the thing known, and when the rational soul turns to itself, it is itself that which it examines, and the increase of knowledge which its science of itself involves must in turn be object of that same science. The soul's knowledge of itself is an important activity to be considered in any explanation of the activity of the soul. Any technique of analysis that reduces rational processes to something other than the content of judgments, and which considers them in terms other than the epistemic and constitutive aspects of the propositions in which the judgments might be stated, is faced with the irreducible difficulty that thought is of a subject-matter, and that there are logical consequences to making thought its own subject-matter. The devices thus of behaviorism have been successful in the analysis of the thought processes, but should behaviorism be brought to explain the content of thought, should the contemplation by thought of itself as the terminus of a thought process be submitted to behavioristic examination, it is difficult to know how the analysis would proceed, for it is not clear how laryngeal conditions are related to a subject-matter or how appropriately psychology could be described in terms of laryngeal conditions about laryngeal conditions. Likewise, to consider concepts in terms of the experiences or impulses that lead to them, or even in terms of the sense perceptions from which they originated, is to leave untouched the significances of concepts, for their significances are something apart from their histories. Theories such as those advanced in psychology may state fully how knowledge occurs, and they may be supplemented by philosophic theories to state how problems arise and are solved, but reason has the peculiarity that it may be concerning itself and the genesis of this characteristic is difficult to state in such

allegories, for it has no analogies and is shared by no other activity of man; its obstinate uniqueness is the more important to the understanding of the nature of thought since psychologists consider only the origins of thought. Knowledge is about a subject-matter; propositions can be asserted and denied; truth and falsity can be predicated of them; and as epitome of these characteristics, knowledge can be of itself and the mind can know itself.

II

These characteristics of speculative knowledge are stated and have their place in all save the more consistently materialistic or the more pertinaciously modern psychologies. For Aristotle the mind is potentially all things and actual knowledge is identical with its object. The thing as it enters into knowledge is idea; or as the medieval philosophers preferred to express it, the being of a thing in the mind is an intention: in its intellectual context the thing intends its own truth. Moreover, for ancient and medieval philosophers the possibility of certainty lay in the reflexive nature of knowledge. But even the mind's knowledge of itself knowing, is formulated differently and has taken on a different meaning in later philosophies. Modern philosophy has discovered imposing predicaments and has espoused or dodged striking dichotomies in exploring the possibility that the mind can know and can be only its own ideas. But when the labor of formulation is completed, usually either the world or the mind has disappeared (or else no inference is made): sometimes there is no mind, but only a congeries of ideas or their equivalent; sometimes there are no ideas, but only motor habits; sometimes there is no world save as idea or as represented by idea. Usually psychology is unperturbed by its predicaments, but the philosophies contemporary with the discovery of the predicament have shown their perturbation by schematizing the mind in categories or tracing the steps of reflective thought. The mind is either constitutive of knowledge or else it is reflective of a world or operative of instrumentalities on an imperfect environment in solution of problems. The system which permits the mind data will permit it no activity to transform the data save to the end of practical operation to alter the data; the system which permits the mind powers of synthesis or analysis can seldom say anything, save irreflectively, concerning the data as presented to the mind or as that with which the mind begins. The function of the mind realizing form from the data of sensation by abstracting from matter and individuality and their appendages, has been transformed into some process of disintegration, like that of sense decaying, or of devitalization, which is the

present-day connotation of abstraction. The consequence of the modern recognition that the mind can know only its own ideas is found in the tendency to explain the sciences by the consideration of the nature of the mind and the processes of thought; the ancients thought, to the contrary, since mind is all things potentially, to know mind by studying the nature of the sciences.

The question, therefore, whether there can be a science of the neglected portion of psychology, that is, a science of that function of the mind which has to do with making propositions or judgments and ordering them in arguments, involves the consideration not only of the nature of the rational soul, but also of the nature of science. For if the finite mind is to be the object of such a science, it can be examined best in the propositions the mind forms; but whatever analysis is made, notwithstanding that knowledge and its object are identical, such is the relation of the potential and the actual that the subject-matter of such a science would always refer to an object other than itself. The subject-matter of rational psychology should be propositions (or judgments) and their inter-relations; its object would then be the soul. If the soul is made the subject-matter in turn of a science, the history of philosophies which have made that attempt is sufficiently invariant to justify the conclusion that inevitably the study of souls suggests as object the eternal things or forms or relations which lie behind the operations of the rational soul.

The characteristics of the difficulty are easy to recognize. The subject-matter of a science of speculative knowledge would be all possible propositions. Any statement concerning that totality would add to the number of actual propositions; such propositions would therefore be made to apply to themselves, and thus the science would be involved in the vicious-circle fallacy; or else they would not apply to themselves, and then they would not state the science of speculative knowledge, since the science of speculative knowledge would not include the propositions it states itself, and would not therefore be speculative knowledge. The difficulty is encountered whether the attempt is made to constitute the science by stating the self-evident first principles from which it might be deduced, or inductively by examining propositions in its subject-matter which may be true or false. The first approach yields propositions in the form of the *insolubilia* which agitated logicians of the fourteenth century, and which have come again to be discussed in the present age as propositions involved in the problem of types. They are propositions which when asserted to be true seem to import their own falsity. The second approach yields propositions in the form of those confidently ad-

vanced as fundamental certainties by Augustine, Anselm, Duns Scotus, and other philosophers in the augustinian tradition; Descartes later thought to reformulate philosophy on a surer basis by means of one of them. They are propositions which, though doubted, involve some indubitable truth. The first propositions have figured in philosophies chiefly as involved in a logical problem, the second as the starting-point of a demonstration of God or as an example of self-evident truth. Together they illustrate the crucial peculiarity of the subject-matter of rational psychology.

The *insolubile* is a proposition which exhibits in itself the circumstance that the mind, since it has the power to make propositions, is able to make propositions about propositions; it must happen sometimes, therefore, that a proposition seem to apply to itself. When Epimenides the cretan says that all cretans are liars, the truth of the assertion seems to involve it in falsity. The contradiction is avoided by the old distinction between words that are about words and words that are about things, words of the second and first impositions; the references and intentions of the two may be different, though the symbol that expresses them be identical; propositions about propositions are of a different order from propositions about things. A proposition by which propositions of a certain sort are denominated false (and by the same token a proposition by which other propositions are denominated true or possessed of any other character) can not be made to apply to itself, since it is not merely a proposition, but a proposition about propositions. Moreover, since the rational mind alone imposes names and definitions, classifies, and makes propositions, the application of the vicious circle principle falls wholly within the subject-matter of rational psychology, and the statement of such a science would itself be involved in the problem of types.

The types and levels in which propositions and terms fall, lead, in the propositions of the second sort, to a problem different from that of classes which include themselves and propositions which apply to themselves. This problem has not concerned logicians, since it involves no logical fallacies and would at most lead to consequences concerning the whole realm of logic and not peculiarly concerning certain propositions; those consequences are metaphysical, and their striking peculiarity is that an existential proposition would seem to follow by inference from a problematic proposition, and a proposition concerning reality from the examination of the nature of propositions. This aspect of the types of propositions and the aspect which has been the concern of logicians have not been brought together, although the debates concerning

each have been considerable among philosophers. But the one has been the long logical debate concerning the validity of the distinction of levels in the application of propositions and the inclusion of classes which makes it impossible that either be reflexive; the other is the even more ancient metaphysical debate concerning whether the inescapable reflexive character of knowledge, which leads to a problem in logic, can itself be so stated as to involve necessary truth—whether, in other words, propositions can be made of such sort that assertion or denial of them will indifferently warrant the assertion of a proposition which can not but be true. The old truths of Augustine and Descartes have such a basis, and no refutation of them has met the arguments which seek to support them in the nature of knowledge, notwithstanding that numerous attempts at refutation have been stimulated by the distaste which later philosophers discovered for the theological consequences usually attached to them. If it is denied that there is an eternal truth, then it is true that there is no eternal truth, and that it is true eternally; therefore, there is an eternal truth. I may doubt all things, including my own existence, but I can not then doubt that I doubt and, to that minimum extent at least, that I am. I know that I feel, that I think, that I will, and Duns Scotus has pointed out that an infinite number of truths of this sort is possible (though Spinoza has remarked that the examination of the regress is not necessary to establish the truth of the first of the series) in that I know that I think, and I know that I know that I think, and so on indefinitely.

The two inferences that are based on the peculiarity of thought and of propositions, the inference by which the necessity of the thinker and that by which the necessity of truth are derived, are not of the same order as the contradictions involved in the vicious circle fallacy. The argument that I think, therefore I am, is not a proposition about propositions, but a demonstrative induction which depends for its force on the knowledge concerning knowledge of which the proposition about a proposition is the clearest instance. From the premiss, *Any thinking is an instance of being,* and the instantial premiss, *This which I perform is an instance of thinking,* the inference is made, *Therefore all instances of thinking are instances of individual personal being.* The problem turns about whether an act of thought can be about itself in such fashion as to denote itself and indicate its own existence unambiguously. The argument to demonstrate the existence of the individual thinker deliberately demonstrates a minimum truth, since it is directed usually, in the context of the philosophy in which

it is stated, against complete skepticism: thinking about thinking indicates the necessary existence of the thinker, even though it leaves every other thought in doubt.

What has been demonstrated, therefore, in demonstrating that thinking, I am, can be examined further by considering what is involved in the argument that affirmation or denial of truth involves the affirmation of truth. The argument is based on the recognition that propositions are asserted as true (and judgments are made as true), that therefore the proposition which asserts the impossibility of truth is involved precisely in the problem of types: if it is true that there is no truth, the proposition is false in that it is true. The conclusion that truth is eternal need mean for the soul, as it is implicated in the proposition that thinking, I am, nothing more than that propositions are assertable. Formally this would mean that the problem of types approaches a limiting case in the proposition which is not about propositions, but about that proposition itself: the proposition, *This is a proposition,* is neither impossible nor false; it is self-evidently true. And its self-evident truth brings out the characteristics of all propositions considered in knowledge, and therefore the characteristics of the soul which is potentially all propositions.

These characteristics emerge, as the result of the reflexive nature of knowledge, in the application of a proposition either to itself or to some part of itself. The conclusions can be based as easily on such a proposition as, *This itself is a demonstrative pronoun,* as on the proposition, *This itself is a proposition,* inasmuch as, in the respective cases, the context makes clear that the first is a proposition about the subject of the proposition, while the second is a proposition about the proposition as a whole. In both cases the peculiarity is that the propositions are not only self-evidently true, but their truth is evident because they present immediately the object whose significance is recognized in the statement of the proposition. The peculiarity may be made clearer by contrast with other cases that fall in the problem of types: the proposition, *This is a proposition,* is unlike the proposition, *This is a true proposition,* in that the negation of the latter, *This is not a true proposition,* is such that the assertion of it as true is the assertion of its falsity, since if it is true that *This is not a true proposition,* then it must be a false proposition, but in that case again it is true; that analysis does not hold for the negation of the former proposition, for the assertion, *This is not a proposition,* can not be taken even hypothetically to be true without altering the definition of a proposition: *This is not a proposition,* is therefore self-evidently false. Moreover, the infinite regress which is one of the common dangers of propositions about

propositions presents no difficulty here. If it were asserted instead (for example) that *All propositions have subjects and predicates,* there would be the difficulty that that proposition would in turn apply to itself, and also to the proposition which made the application. The truth which is stated in any proposition about propositions is enlarged by the constant necessity of including too within that truth the proposition which stated that truth. In like manner, the proposition, *This is a proposition* should be enlarged to *"This is a proposition" is a proposition,* and so on indefinitely, but unlike the first regress this is not the enlargement of a truth previously stated to include a new instance, and it does not therefore increase the scope of a class, but rather it is the addition of a new truth, like the former truth, to the truth already stated. The first type of proposition (as *All propositions are true or false*) converges on the class in virtue of which all propositions possess a given characteristic; the second (as *This is a proposition*), in virtue of the same property of knowledge, converges on the instance there stated. The first is a statement of characteristics which instances must possess; the second is the recognition of an instance from the possession of characteristics stated or implied. At first glance it might seem that, since the first is inapplicable to itself without fallacy, the second can not be self-evidently true by application to itself. For if the rule of application were stated, by which the proposition, *This is a proposition,* is applied to itself, it would seem to be a proposition in the form, *All propositions have a subject and a predicate,* and this is seen to have no application to itself by the theory of types. That, however, is not the case, but rather the nature of knowledge is again illustrated in the circumstance that although propositions concerning the class of all propositions are impossible, none the less propositions can be recognized and analysed. If a proposition is an individual entity with a significance which is not individual but analytic, the crucial case is reached in the proposition the significance of which is directed to identifying itself in its individuality.

If, in a word, propositions may sometimes be formulated in such fashion that they apply to themselves (and classes include themselves), propositions may on the other hand be formulated sometimes to indicate themselves (and classes to indicate classes). Propositions about propositions are fallacious when they state what propositions are or must be; they are necessarily true when they state that given propositions are, for propositions are involved in the statement that propositions are or are not (and knowledge is involved in the recognition that knowledge is or is not). The inference from propositions yields the realm of all possible propositions; the inference from thinking yields the reality of the individual

thinker. The first is the statement of the possibility of science; the second, the statement of the existence of a thinker. The nature of the demonstration involved in the ontological argument and in Descartes's *cogito ergo sum* is of this sort, and any attempt to reduce either to syllogistic argumentation misses the cogency of the inference, since it ignores the immediate reality of knowledge itself (the idea of God, the cartesian doubt, or finally any proposition or concept), but seeks to state some principle by which an idea may be rendered more immediate than it is.[1] The existence of the thinking mind is the only existence that the mind can affirm directly and certainly from its ideas; the relation of that mind to the sum of all possible propositions, which it is potentially, indicates the total reality to which the mind can penetrate, on the other hand, and the total intelligibility of all things on the other. Incidentally, too, it seals the impossibility of rational psychology.

III

The further inferences that have been based in the history of thought on the truths, that denying or affirming a proposition about truth, I affirm truth, that doubting, I am, have been concerned with working out the consequence that thought operates on fixed principles, eternal relations, changeless ideas—whatever they have been called the demonstration emphasizes the type of constancy that is displayed (for example) by numbers, and the example of numbers has figured in almost every philosophy that employs the demonstrations. It makes very little difference what they are called, for Ideas or the eternally subsistent truth are known in no other way than by the inference which proceeds from the truths discovered by the mind, since those truths are not sufficiently explained by the finite mind or the history of its experiences. By whatever name, the subsistent truth, God, the Ideas, the self, the world soul, objective mind, must, in the systems that expounded them, be unintelligible to finite beings in the condition of human kind. Once recognized, therefore, they can be ignored, together with the soul, so far as the purpose is to know the soul, since they lay bare the impossibility of a science of the soul—for the soul, since it is potentially all things, shares in the character that made the sum of things unknowable: if the science of all sciences is impossible, the science of that which is potentially all sciences is likewise impossible. The demonstrations consequently which have come down the neoplatonic tradition in philosophy, reiterated strongly by all who have been

[1] For another statement of this immediate reality in ideas and interpretation of its relation to formal causes, compare R. McKeon, "Causation and the Geometric Method in the Philosophy of Spinoza," *The Philosophical Review*, XXXIX, May, 1930, 287 ff.

in the least influenced by Augustine, are designed to signalize the necessity, for the explanation of thought, of recognizing the necessary existence of that, the nature of which exceeds understanding, of which none the less all understanding is part. There is a God in all philosophies to function as formal cause of ideas. Therein is the wisdom of the medieval philosophers, who said that the soul knows that it is but not what it is, for even philosophers who have based their doctrine on the possibility of clear and distinct ideas of God and of the soul, are anxious to add that such ideas are not total, nor complete, nor exhaustive of the nature of either. For the rational soul is potentially all things and all propositions that might be made. But there is a double convergence of propositions, approached according to their form or according to their matter. Propositions which purport to be about the soul are part of the possible sum of propositions, and illustrate the nature of the soul, but for that reason are not statements of its necessary nature. In this sense psychology is no more the science of the rational soul (nor is it more fruitful of information concerning the soul) than physics or any other science that explores the intelligibility evinced in concepts and inferences, and that engages in the processes of making propositions related to each other by the devices of scientific demonstration. To that extent empirical and experimental psychologists have been correct in their refusal to consider the substance of the soul and in contenting themselves with phenomena. But the determination to limit oneself to phenomena will not annihilate the circumstance that states and conditions are states of something and that the nature of that thing is not exhausted by the summation of its states, and further, that those states can not be understood in themselves alone.

The various sciences, then—including the various kinds of psychology—may be considered the subject-matter by which to elucidate the rational soul. Marks of the difference between what a science of the rational soul would have to be and other sciences are frequent in that subject-matter. The physical sciences have rarely been in doubt concerning their subject-matter, for the objects they studied were definable; they have, however, been in doubt frequently concerning what the science of that subject-matter is. But psychologists have perplexities concerning the subject they are to investigate, and the subject-matter of psychology shifts from book to book in the tradition of psychology. On the other hand, for all the definiteness of delimitation to which the subject-matter of the physical scientist is susceptible, it is not impossible to introduce doubts concerning whether or not objects exist to which his science is applicable. Psychologists may hesitate concerning whether they are to study

ideas or neuro-muscular conditions, but no philosophic doubts arise concerning the existence of either, because the philosophic tradition initiated by Locke has thrown no doubts on the existence of ideas, and the other philosophic tradition which has influenced psychology has inherited only the difficulties of physiology, untroubled by peculiar philosophic problems.

At first sight the examination of the sciences to learn the manner of operation of the mind seems to afford little clarification for the consideration of the soul, for the constitution and methodology of science is as much in dispute as the subject-matter of psychology. But if the analysis which has been made is pursued further, some of the confusions of the theory of science may be avoided, inasmuch as they follow as a consequence of having interpreted science in accordance with the various dogmas of psychology. If science is formulated in the terms of psychology, it is the effect of sensations and experiences ordered in the mind, or the active resolution of problems to which experience gives rise. But if the sciences are considered in terms of what they are, rather than in terms of their origin, that is, as bodies of knowledge statable in propositions ordered in certain relations, they are caused not by the data that enters into them (a proposition is not caused by its subject and predicate, save in the sense that they supply the data with which it is concerned, that is, they are its material cause), but by the ordering principle by which they are arranged. The sciences are the effects of the soul which is potentially all things. Sensation and experience, which supply the materials of sciences (as subject and predicate supply the materials of propositions), far from causing them, save as material causes, are themselves intelligible only by the activity of the soul and as a consequence of science. There is no mystery in this dependence of the sciences on the soul, for the soul is in no sense creative in its activity of stating the sciences, nor is it presumed in recognizing the soul as cause of the sciences, that anything further is known therefore of the soul; it is unintelligible precisely because its effects are known directly, and an unknown cause can not be known determinately by inference from its effects. Stated paradoxically there is no science of the soul, yet without the soul no science is possible, and without the recognition of the soul no science is intelligible.

That the soul knows that it is, but not what it is, presents no difficulties. To know one's ignorance an exhaustive knowledge of the nature of that which one ignores is not needed. The statement, *I do not know physics,* can be accurate without a preliminary research into the subject of physics which might make certain that one had been ignorant, but would also destroy the ignorance; the statement can be true only without such research. What the mind knows

in knowing itself is that there are changeless relations (whether logical or metaphysical) disclosed when it formulates its thoughts carefully, and that each careful reformulation will disclose the same relations. It does not discover or encompass directly eternal relations or eternal objects such as its thought may be based on, for its thought is the reflection or utilization of those relations. Nor can it from the effects prove the objects with cogent demonstration, since that would be to know them. Nor, on the other hand, is it necessary that any fixity of scientific language or dogma result from the eternity of relations on which science is founded. Eternal things do not make necessary an eternity of the symbols in which they are stated or reflected. The nature of symbols, indeed, necessitates the possibility of an equivocal as well as a univocal use of them. The important effect of the relations with which the soul comes to be identified is that, when symbols are used univocally, when they are defined carefully, propositions are sometimes yielded which are self-evidently true, and that those propositions in relations sometimes yield demonstrative consequences which are constituted the sciences. Approached from the side of propositions (or ideas), rather than from the experiences of instances from which the propositions might be supposed to be generalized, there is no need for the caution displayed by the postulate theory. Sciences are based on first principles known intuitively to be true, not on postulates hypothetically entertained. That definitions of words can be changed is sufficient to account for the shifting significances of propositions; if propositions belong to independent systems derived from different definitions, there is the problem of translating them from one set of terms to the other, but there is no contradiction to resolve. Scientific knowledge consists in demonstrations from principles known intuitively; its conclusions are commensurately universal and necessarily true; they can not deal with the perishing thing. The problems of induction are in the form of asking dialectical questions to discover definitions that may profitably be taken to apply to things. Once an answer has been obtained to the question, by whatever device, *This is such or it is not such?* the procedure is as in demonstrative knowledge. All propositions about finite changing things are only problematically true.

The modification which the soul makes necessary in the theory of knowledge is obvious. If psychology is the science of an organism or a consciousness operating among the data of experience, science is concerned with propositions generalized from experience. If psychology is a science of the functions of the soul, though the soul is itself unintelligible, science is concerned with propositions deduced from self-evident truths. The tendency in modern theories of

science is to make science consist exclusively of propositions about finite changing things observed under experimental controls; these are found to yield no absolute certainty; yet such certainty as they yield is taken to be the highest possible, since no greater can be attained relative to things observed in time and space; it is concluded therefore that absolute certainty is impossible. It is difficult to decide whether that theory of science is the result of a psychology which is concerned only with phenomena, or whether psychology has been constructed to ape physical sciences. The problem of the nature of science, in any case, is seen most sharply revealed in the science of psychology itself, for that science purports to study in part at least the faculty by which science is possible. To psychology without a soul, a science of the soul is meaningless; science itself, save in the sense of an ordering of data, is impossible; and true and false become terms of unending dispute and relativity. If the place of the soul is recognized, it is still impossible to have a science of the soul, since there are no self-evident propositions suitable to generate a demonstrative science of the soul, and the problematic propositions which experience might suggest are parts of the soul, not its principles. But the recognition of the nature of the soul will permit the statement of a theory of science that will transcend the mere statement of data collected and ordered; it will permit considerations of truth and falsity and the statement of first principles to be introduced without disguise or hesitation; and it will suggest a subject-matter in which what is possible of rational psychology may be worked out in terms of demonstration and the dialectical examination of arguments, rather than in terms of facility of learning, scope, and retention. The vicious circle principle, however, the presence of which among the propositions of the mind speculating about itself makes such an analysis possible, will not admit a demonstration of the final validity (or a refutation of the error) of one or the other of these approaches, from the soul or from things, for if either demonstration were possible it would be a science of the soul. The choice must be by a comparison of effects, since in either analysis both theories are the effects, not the principles of the soul: of the two, the doctrine that the soul is, so expounded and apart from the further effects that depend on it, has its chief persuasion in the recognition it permits of the characteristic activity of the soul reflecting on itself.

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RELIGIOUS EXPERIENCE AND METAPHYSICAL SPECULATION: A NOTE

THE historic connection between metaphysics and religion is, of course, notorious. The fundamental premise of metaphysics—the existence of an unseen reality distinct from those in experience and independent of them—arises out of the presumptions and technique of religion. The other characteristic postulate of metaphysics—that this unseen reality is somehow congruous with human nature and human desires; that, one, eternal and spiritual itself, it guarantees the immortality and freedom and ultimate happiness of man—is a conceptualization and refinement of the myths and rituals of practical religion. The metaphysics of the great tradition is preoccupied with proving that the immediacies of experience are appearance, errors, illusion; that reality is behind experience, not in it, and in one way or another as the heart desires it. From Plato to the latest of the idealists—to Whitehead or Croce—this is so. Even atheists and materialists do not elude the contagion. If they give up trying to prove God and freedom and immortality, they are nevertheless preoccupied with proving the world's unity and eternity against the manifest flux and manifoldness of experience. Almost immediately behind the concepts of the metaphysician lurk the divinities of the priestcraft, behind the dialectic of the speculative philosophies play the rituals of the churches. Look at the conceptions and practices of the dominant ecclesiastical establishments of a people or a civilization if you wish to understand its prevailing philosophy. The medieval declaration that philosophy is the handmaid of religion holds over in practice to our own day. Although the speculative enterprise has been liberated from the ecclesiastical rule and is no longer under compulsion to vindicate and secure questionable articles of faith with doubtful arguments of reason, it is still largely preoccupied with just that affair. So far as essential objective goes, Eddington and Whitehead are no less body servants to theology than Aquinas and Scotus. Religion and metaphysics appear like the Siamese twins, distinct, often opposed personalities, each sick of the other, but with the same life-blood circulating through their veins.

Thus the liberation of metaphysics from religion might seem to require a major operation which could be fatal to both. Prior to the nineteenth century, non- and anti-religious philosophies are neither numerous nor frequent in the history of thought. Keen of insight and excellent in structure though they may be, they fail to be taken up and do not survive. In spite of the fact that science and industry have tended, at least among the intellectual classes, completely to secularize the tools and processes of thought,

metaphysics tends to theologize them all over again. Philosophies which stay on the secular level are somewhat despised by the profession and looked upon without enthusiasm by the laity. There is no high adventure in them, no ultimate joy or precious salvation to gain. They are sober, disillusioned, pedestrian, tentative, and sceptical more often than dogmatic and assured, and they bring no consolation. They are concerned with methods rather than conclusions, with experiences rather than principles. The high argument which, for the thousandth time over again, reëstablishes the compensatory ultimacies, is not for them. Haeckel and Dewey are extreme varieties of the practitioners of these pedestrian philosophies, and nobody who is anybody among the metaphysicians seems to like them.

Another instrument for excising the bond between religion and metaphysic, without too much danger of killing the patients, is the experience called religious. "Religious" is a bad epithet in the connection, however. It does not characterize the experience, it only designates the locus of its occurrence or seeking. Its setting, its imaginative and conceptual antecedents, its defining consequents, are usually "religious." But this is due to a connection of the folkways, not to any intrinsic connection between religion and the experience. It can, and does, occur in any setting—the dentist's chair and the operation table, among others—and is subject of any interpretation. Subject, I say. It differs from every other experienced event in that it can not be used as a predicate. It differs from all inferred and represented metaphysical objects in that no articulate structure or anything else than its own directly apprehended *quale* can be attributed to it. It is ineffable. It makes no deliverance. Yet it is an event of immediate experience and with more than the characteristic warmth and intimacy and "so-ness" of the immediate.

That no empirical substitutes or equivalents for this experience have been discerned, that it is always "knowledge of acquaintance" and is not an available component for "knowledge about" anything else, may be due to the fact that its occurrence as perception is not translatable into other occurrences as perceptions. Stimuli of the eye, ear, nose, skin, and the like, may be transposed and stated in terms of one another, as the movie and the talkie do. These stimuli can be generalized into a common energy or activity and that reconverted into specific sights, sounds, touches, tastes, and such by means of appropriate transformers. Not so the religious experience. If it has an organ, its organ is altogether different from the familiar ones in status and function. So long as these operate at all, normally or abnormally, the religious ex-

perience does not occur. For it to occur, the normal modes of perception must have completely broken down and been abrogated. The breakdown is usually attended with hallucinations and other disturbances of the perceptive function, and experiences of these are often designated as "religious," as they very properly should be. But the "true" religious experience, the event which the mystic celebrates and lives and dies for, does not happen until other forms of experience have been made impossible by the functional breakdown of the normal organs. The mystic disciplines, such as yoga, the fastings and flagellations and exposures of ascetics, are designed to accomplish this breakdown. Drugs accomplish it. And any personal or social crisis may bring it on.

When it has occurred, men often declare that they have seen God. They try to characterize the way of seeing, calling it intuition, pure reason, love, and the like. But "God" is a predicate applied to the experience, an endeavor to define and to classify it, not to exhibit it. Intuition, pure reason, love, and so on are similarly names for heightened forms of the normal modes of perception predicated concerning the mode of the religious experience. The experience does not call for them, does not imply them. The reasonings and attributions of such thinkers as Plotinus, St. Bernard and other Christian mystics, as Spinoza, and as Bergson, are accidental to institutional associations, to available intellectual tools, and to tradition. That the predicates of Plotinus and the Christians, or for that matter of the Brahmin and Taoist philosophers, are drawn from their setting is obvious. And it needs little pointing out to realize in how great a degree Spinoza's adequate ideas and intellectual love of God, Bergson's intuition and instinct, are compenetrations of new instrumentalities of thinking with traditional attitudes and forms. The latter's *élan vital* stands out as such a compenetration. Bradley's absolute, and the way it presents itself to feeling, are more like a break with the tradition, closer to an independent approach. And there is a genuine novelty in Santayana's interpretation of the religious experience as the immediate intuition of what he calls matter. In my *Why Religion* I myself have detailed reasons for predicating otherwise imperceptible forms of radiant energy impinging on the cortex without response as the content of the experience.

But its chief liberative influence comes not so much from the ruminations and reasonings of professional philosophers more or less loosed from the ecclesiastical setting and its ideas, as from the testimony of secular mystics, to whom the experience comes altogether out of connection with the religious establishment, its images, practices, concepts, and rationalizations. Such a secular

mystic was Benjamin Paul Blood, the friend of William James, celebrated by him as a "pluralistic mystic." Blood fell into the experience in the dentist's chair and pursued it through many minds and places—in hospitals, in laboratories, among poets, politicians, scientists, and the common folk. For his first attempt to make a deliverance concerning it he had available the dialect of the school of metaphysics prevalent at the time—that of American neo-Hegelianism. And his exciting little paper, "The Anæsthetic Revelation" was couched in that idiom. As he continued to live with and for the experience, in the course of his long life he unlearned the neo-Hegelian language, and worked up a diction more completely secular. His *Pluriverse* expresses this spontaneous mystical insight in this new language. Printed more than a decade ago, it fell like lead from the press; but there is an even chance that sooner or later some adventurous young mind will happen upon it and draw from its difficult but far from impenetrable depths the materials of a new philosophy. At the heart of this philosophy will be the ineffable mystical experience, unmediated either through the stuffs and forms of religion or of any other institutional establishment. Hence it will validate no foregone conclusion, prove no unity, no eternity, no God, no freedom, no immortality. It will impel the mind upon the new type of philosophic adventure which has no inevitable and no terminus. If Blood's own attitudes and views are a sample, this new philosophy will involve a curious compenetration of the works and ways of Taoist quietism and pragmatist energy. It will be secular, disillusioned, courageous and serene, humanist in its aspirations, scientific in its techniques and radically empirical in its insights. But most of all, it will be free from foreign entanglements, especially ecclesiastical, and exercise its functions for their own sake.

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BOOK REVIEWS

Rational Induction. An Analysis of the Method of Science and Philosophy. HOMER H. DUBS. Chicago: The University of Chicago Press. 1930. xv + 510 pp.

By "rational induction" Dr. Dubs means the method of hypothesis, which has been the method of the sciences and ought to be the method of philosophy. Rational or hypothetical induction thus includes as indispensable aspects of itself, not only what traditional logic has called "induction," but also what it has described under

the head of "deduction." Professor Dubs's main thesis, then, is that "rational"—as distinguished from merely empirical—induction gives certainty and therefore genuine knowledge. The proof of the thesis consists essentially in showing by a survey of the history of science that the method of hypothesis has led to trustworthy results. This proof, as Dr. Dubs frankly admits, involves a *petitio;* but it is a *petitio* which is inevitable and therefore unobjectionable. For it is obvious that any logical method which is assumed to be ultimate must be used to justify itself. The objection that many hypotheses have been "verified," only later to be abandoned as untenable, is met by the doctrine of "limited universals." Rejected hypotheses, says Dr. Dubs, have not been proved untrue; they have rather been shown to be limited in their application. For example, the Newtonian laws have not been refuted, but still hold true as special cases of Einstein's laws. (See p. 279.)

Dr. Dubs's analysis and defence of scientific method seem, for the most part, sound and convincing. And yet, in discussing whether various logical methods give us "certainty" or mere "probability," it would be well to make somewhat clearer than Dr. Dubs has done the precise sense in which these terms are to be understood. What is "certainty"? Does it mean (1) a *feeling* of assurance, or (2) the *right* to enjoy this feeling? The former we may call *psychological* or experienced certainty; the latter, *logical* or demonstrated certainty. We must be careful, however, not to distinguish too sharply between these two varieties of certainty; for it is obvious that the latter presupposes and depends upon the former.

A recognition of this relationship would, I suspect, have saved Dr. Dubs from the futility of arguing that science attains "certainty" rather than "probability." For there are degrees of certainty; and there is accordingly no important difference between the assertion that a given event or proposition is "very probable" and the assertion that it is "very certain."

And this suggests a further distinction. If we are thinking of logical certainty—of the *right* to be certain—which I suppose is the sense in which Dr. Dubs usually employs the term, we may content ourselves (*a*) with what, for want of a better name, may be called *practical* or *moral* certainty, or we may insist (*b*) upon a certainty which is *absolute*—that is, which is the upper limit of the scale of probabilities. Now it must be said that in his vindication of "rational induction" as a method for the attainment of certainty, Dr. Dubs seems to be satisfied—wisely, I should think—with sense (*a*); while in his disparagement of all other methods of truth-seeking, as eventuating in mere opinion or probability rather than genuine knowledge, he appears to insist upon the more rigorous meaning.

All that we have a right to demand of any method is that it yield results which are free from *reasonable* doubt; and a doubt which would apply just as well to any other statement as to the one in question is not a reasonable doubt. This, it seems to me, is the true refutation of the skeptic. In a sense, the skeptic is right: it is possible to conjure up a doubt concerning anything whatsoever. But a doubt which holds against *all* truth-claims need not disturb us; for no one—not even the skeptic himself—is able to take it seriously. The important question in any given case is not whether the thing is absolutely certain, but whether the evidence in its favor is at least as good as that which can be adduced in favor of other things which we regard as certain. Truth-seeking is thus an endeavor, with as little renunciation as possible, to attain a coherence of certainties.

In his section on deductive inference, which, as we have seen, is an essential part of "rational induction," Dr. Dubs describes the syllogism as an argument consisting of *five* propositions. To the traditional three he adds, in each case, the canon and the "validating proposition" (p. 158).

The explicit statement of the canon has the practical advantage that it permits an extension of the notion of syllogism so as to include forms of inference other than those traditionally recognized. Nothing seems to be gained, however, by an explicit statement of the "validating proposition." If the syllogism is rightly put together, the affirmation of the "validating proposition" makes the argument no more valid than it was before. On the other hand, if the validating proposition is denied, this denial is either true or false. If the denial is true, the syllogism was already invalid; if the denial is false, the syllogism remains as valid as before.

Even if we should grant the desirability of stating the canon and the validating proposition, we could not agree with Dr. Dubs that his analysis of deductive reasoning destroys the "ideal of modern rationalism" (p. 187). For in the first place, Dr. Dubs himself admits that the canon and the validating proposition are not premises in quite the same sense as the others, which he designates as *material* premises or propositions (p. 158). It follows, then, that we may still seek to derive the greatest possible number of theorems from the smallest possible number of primitive *material* propositions. In the second place, even if we put all four "premises" on the same level, we may still organize and reorganize a given body of doctrine so as to have the smallest possible number of *unproved* propositions.

The ideal of simplicity as applied to the choice between alternative hypotheses also seems to have been misconceived by Dr.

Dubs. He holds (p. 287 ff.) that nature is not simple, and therefore that the simplest hypothesis is not always the best explanation. This may, of course, be granted. But, so far as I know, no one has ever interpreted the law of parsimony in quite this way. It has usually been understood to mean that of two hypotheses *which explain the same group of facts* the simpler is to be preferred. The circumstance that relatively simple hypotheses have in some cases been superseded by hypotheses which are less simple results from the inability of the older hypotheses to explain *all* the relevant facts. Dr. Dubs's principle that "otiose elements" of a complex hypothesis are not established in the verification of the hypothesis (p. 250) is sound enough; but it does not take the place of the principle of simplicity. The epicycles of the Ptolemaic astronomy can scarcely be said to have been otiose! They were needed to explain the movements of the planets. As long as the hypothesis was itself retained, the doctrine of epicycles remained an essential part of it.

In calling attention to these respects in which Dr. Dubs's account of scientific method has fallen somewhat short of perfection, I do not wish to detract from the worth of the book as a whole. I wish to repeat that, in my judgment, the author's defence of science is convincing, and that in the main the analysis is sound. He is certainly justified in his insistence that the method of philosophy should be in principle the same as that which has been employed so successfully in the special sciences. The book shows marked honesty of purpose combined with a wide reading of the relevant literature; and where one disagrees with the positions taken, the treatment is found to be unusually stimulating and thought-provoking.

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Die Form des Erkennens. WILHELM GREBE. München: Ernst Reinhardt. 1929. Pp. 144.

This book consists of a series of loosely connected and somewhat obscurely written studies on the nature of logical form. It maintains the sound thesis that a judgment is never about itself, and that some confusions in logical theory can be cleared up by keeping distinct the *content* of judgments from the *logical form* in which it becomes "enveloped" when known or judged. It seeks to "validate" the logical form tacitly assumed in formal logic, by discovering the "primary source" from which the principles of that science derive their meaning. Upon the basis of a thoroughgoing dualism between a single logical form, intrinsically meaningless, unimaginable or representable in intuition and uncertain in its application, on the one hand, and a plurality of contents, meaningful and intuitable as

well characterized by necessary structures, on the other, Grebe manages to obtain interesting though familiar results. Some well-known logical paradoxes are resolved by invoking this dualism; Berkeley's nominalism receives merited strictures; and an adequate critique of the correspondence theory of truth is carried out by pointing to the infinite regress which it implies (p. 41).

But the correlativity of logical form and content, which is the central thesis of the book, turns out to be of a specious kind, since it soon appears that only in a (narrowly conceived) knowledge situation does content possess logical form at all (p. 12). Knowledge is indeed defined as being the resolution of initial doubts which involve non-cognitive possession of subject-matter. But instead of developing thereupon the outlines of an instrumental logic which seems the natural heir to such a beginning, Grebe finally understands by knowledge an inherently passive contemplation, and relegates the activity which he admits accompanies the resolution of doubts to a realm of non-logical considerations (p. 193). Indeed, the doubt which initiates inquiry is of a very pallid sort, raising only the question *which one* of severally enumerated assertions can be made, and not the discovery of what the conditions and details of a satisfactory solution to difficulties may be (p. 12). Consequently, he commits himself to the doctrine that valid knowledge has no extrinsic criteria (p. 104), that knowledge is essentially recognition (p. 20), and (apparently) that experimental methods do not produce their own adequate norms (p. 100).

Since logical form is declared to be "meaningless," it is perhaps not strange that very little is said of it explicitly, and the only definite thing it appears to be is the form of assertion. Thus, "the white of this rose" is mere content devoid of logical form, although "this rose is white" exemplifies content imbedded in form (p. 16). But since there is only one such form, and since knowledge is obtained whenever this form envelops content, one wonders what the difficulty is, on this view, in obtaining knowledge easily and at all times. Grebe succeeds in saving the consistency of his procedure, (he does talk *about* logical form after all) only by maintaining that logical form *as content* is never identical in nature with the form *in function* (p. 71). What the nature of this transformation is, and how or on what grounds we may speak of the *same* form, now as content now as in function, is not indicated.

Grebe wishes to maintain a belief in a material *a priori,* without abandoning his doctrine that an element of uncertainty is constitutive of knowledge. His solution of this difficulty is that *a priori* knowledge deals with essential relations, not with existential ones, and that it is always directed upon the *meaning* of subject-matter,

not upon a logically formless one as is the case in *a posteriori* knowledge (sic!) (p. 98). Although he refers to Schlick approvingly in support of his main thesis, he yet commits himself to both immediate and mediate knowledge. Grebe apparently does not see, as does Schlick, that it is confusion to classify as knowledge both the psychological immediacy of non-cognitively possessed subject-matter, and the symbolic or inferential activity which is the essence of knowledge. Grebe is thus compelled, in consonance with his rejection of experimental activity as constitutive of knowledge, to base all mediate upon immediate knowledge, because an endless regress is (falsely) supposed to attend the denial of this proposition.

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JOURNALS AND NEW BOOKS

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NOTES AND NEWS

The ninth volume of the *Annalen der Philosophie* has appeared under a new title and board of editors. The new series is called *Erkenntnis* and is edited by Rudolf Carnap and Hans Reichenbach.

From the editor's introduction to the new series we quote:

"The *Gesellschaft für empirische Philosophie* (Berlin) is now affiliated with the *Verein Ernst Mach* (Wien) . . . Since we believe the goal of philosophy to be knowledge, knowledge in the same sense as in any other science, we have chosen the word as the mark of our new periodical. Our periodical does not seek doctrines, nor complete systems, nor conceptual novelties; it seeks knowledge."

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No. 2 of *Erkenntnis* contains the report of the proceedings of the first *Tagung für Erkenntnislehre der exakten Wissenschaften* at Prague, 1929. The contents of this number as well as of the first, are listed above under "Journals and New Books."